Remarks

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 1-17 are pending in the application, with claims 1, 9 and 15 being the independent claims. Claims 1, 2, 4, 9, 12 and 14 are sought to be amended. These changes are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendment and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Claim Objections

The Examiner has objected to claim 14 due to a typographical error ("used" is spelled "ussed"). Applicants have amended claim 14 to address this error, and therefore respectfully request that this objection be withdrawn. Additional minor amendments have also been made to claims 1, 2, 4, 9 and 12. These amendments are merely intended to clarify claim language and are not intended to narrow the scope of the claims. These amendments introduce no new matter and their entry is hereby respectfully requested.

Rejections under 35 U.S.C. § 103

The Examiner has rejected claims 1-17 under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,438,123 to Chapman (hereinafter, "Chapman") in view of U.S.

Patent No. 6,542,504 to Mahler *et al.* (hereinafter, "Mahler"). Applicants have carefully considered the Examiner's statements, but respectfully disagree.

Claim 1, as currently amended, recites:

> A method for dynamically mixing header suppression techniques for transmitting data over a Data Over Cable Service Interface Specification (DOCSIS) network, comprising the steps of:
>
> (a) communicating a plurality of header suppression techniques and a unique index number assigned to each of the plurality of header suppression techniques to a cable modem termination system;
>
> (b) receiving a plurality of data packets to be transmitted;
>
> (c) identifying which of the received data packets have a header that should be suppressed;
>
> (d) selecting a header suppression technique from the plurality of header suppression techniques for each of the identified data packets;
>
> (e) appending a packet header element to each of the identified data packets, the packet header element containing the index number assigned to the header suppression technique selected for each of the identified data packets; and
>
> (f) suppressing a header of each of the identified data packets using the header suppression technique selected for each of the identified data packets.

Chapman does not teach or suggest each of the foregoing features. For example, Chapman does not teach or suggest "communicating a plurality of header suppression techniques . . . to a cable modem termination system" as claimed. In the most recent Office Action, the Examiner has conceded that Chapman does not teach a plurality of header suppression techniques. *See* Office Action at ¶ 3. Instead, Chapman teaches the use of only a single header suppression technique: suppression of Ethernet, UDP and IP headers in a flow of RTP packets corresponding to a Voice over Internet Protocol (VoIP) phone call. *See* Chapman, col. 4, ll. 29-44.

The above-described shortcomings of Chapman are not remedied by the teachings of Mahler. Like Chapman, Mahler only teaches the use of a single header

suppression technique. In Mahler, the technique involves the identification of fields that are "often or always the same" in IP/UDP/RTP packet headers. *See* Mahler, col. 5, ll. 50-60. Default values for the identified fields are stored in a profile, a copy of which is accessible to both endpoints of a point to point link. The transmitting endpoint uses the profile to remove the identified fields from the packet header, thereby compressing it, while the receiving endpoint uses the profile to reconstruct the packet header. Although Mahler provides for the negotiation of a new profile between endpoints to achieve greater compression efficiency, the underlying suppression technique (i.e., the identification and suppression of fields that are "often or always the same" in IP/UDP/RTP packet headers) remains the same. Thus, like Chapman, Mahler does not teach or suggest "communicating a plurality of header suppression techniques . . . to a cable modem termination system."

In contrast to the teachings of Chapman and Mahler, the method recited in claim 1 includes the communication of a "plurality of header suppression techniques . . . to a cable modem termination system." By communicating a plurality of header suppression techniques in this manner, the invention of claim 1 permits a variety of diverse header suppression techniques to be applied to a plurality of data packets to be transmitted to the cable modem termination system. Thus, by way of example and as set forth in the "Detailed Description of the Present Invention" section of the present application, an embodiment of the invention of claim 1 may dynamically mix the application of a standard DOCSIS payload header suppression technique, an RTP header suppression technique, and a dynamic delta encoding header suppression technique to a plurality of data packets to be transmitted to a cable modem termination system.

Since Chapman and Mahler, alone or in combination, do not teach or suggest every feature of claim 1, they cannot render that claim obvious. Accordingly, the Examiner's rejection of claim 1 is traversed and Applicants respectfully request that the rejection be withdrawn. Furthermore, since each of claims 2-8 depend from claim 1 (and therefore include each and every feature of claim 1), Chapman and Mahler, alone or in combination, do not teach or suggest every feature of each of those claims. Therefore, Applicants also respectfully request that the Examiner's rejection of claims 2-8 be withdrawn in light of the remarks made above.

Claim 9, as currently amended, recites:

> A method for expanding data packet headers transmitted over a Data Over Cable Service Interface Specification (DOCSIS) network, comprising the steps of:
> (a) receiving a mixed protocol burst comprising a plurality of data packets having headers suppressed in accordance with a corresponding plurality of header suppression techniques;
> (b) identifying each data packet within the mixed protocol burst that has a suppressed header;
> (c) searching a lookup table to select a set of rules from a plurality of sets of rules for expanding a suppressed header of each of the data packets identified in step (b); and
> (d) expanding a suppressed header of each of the data packets identified in step (b) according to a set of rules selected in step (c).

Chapman does not teach or suggest each of the foregoing features. For example, Chapman does not teach or suggest "receiving a mixed protocol burst comprising a plurality of data packets having headers suppressed in accordance with a corresponding plurality of header suppression techniques." In the most recent Office Action, the Examiner has conceded that Chapman does not teach a plurality of header suppression techniques. *See* Office Action at ¶ 3. Instead, Chapman teaches the use of only a single

header suppression technique: suppression of Ethernet, UDP and IP headers in a flow of RTP packets corresponding to a Voice over Internet Protocol (VoIP) phone call. *See* Chapman, col. 4, ll. 29-44.

The above-described shortcomings of Chapman are not remedied by the teachings of Mahler. Like Chapman, Mahler only teaches the use of a single header suppression technique. In Mahler, the technique involves the identification of fields that are "often or always the same" in IP/UDP/RTP packet headers. *See* Mahler, col. 5, ll. 50-60. Default values for the identified fields are stored in a profile, a copy of which is accessible to both endpoints of a point to point link. The transmitting endpoint uses the profile to remove the identified fields from the packet header, thereby compressing it, while the receiving endpoint uses the profile to reconstruct the packet header. Although Mahler provides for the negotiation of a new profile between endpoints to achieve greater compression efficiency, the underlying suppression technique (i.e., the identification and suppression of fields that are "often or always the same" in IP/UDP/RTP packet headers) remains the same. Thus, like Chapman, Mahler does not teach or suggest "receiving a mixed protocol burst comprising a plurality of data packets having headers suppressed in accordance with a corresponding plurality of header suppression techniques."

In contrast to the teachings of Chapman and Mahler, the method recited in claim 9 includes "receiving a mixed protocol burst comprising a plurality of data packets having headers suppressed in accordance with a corresponding plurality of header suppression techniques" and "searching a lookup table to select a set of rules from a plurality of sets of rules for expanding a suppressed header of each of the data packets."

Thus, the invention of claim 9 permits the expansion of suppressed headers of a plurality of data packets having headers suppressed in accordance with a mix of diverse header suppression techniques. Thus, by way of example and as set forth in the "Detailed Description of the Present Invention" section of the present application, an embodiment of the invention of claim 9 may expand suppressed headers of a plurality of data packets having headers suppressed in accordance with a standard DOCSIS payload header suppression technique, an RTP header suppression technique, and a dynamic delta encoding header suppression technique.

Since Chapman and Mahler, alone or in combination, do not teach or suggest every feature of claim 9, they cannot render that claim obvious. Accordingly, the Examiner's rejection of claim 9 is traversed and Applicants respectfully request that the rejection be withdrawn. Furthermore, since each of claims 10-14 depend from claim 9 (and therefore include each and every feature of claim 9), Chapman and Mahler, alone or in combination, do not teach or suggest every feature of each of those claims. Therefore, Applicants also respectfully request that the Examiner's rejection of claims 10-14 be withdrawn in light of the remarks made above.

Claim 15, as currently amended, recites:

> A system for dynamically mixing header suppression techniques transmitted over a Data Over Cable Service Interface Specification (DOCSIS) network, comprising:
>
> one or more cable modems that suppress data packet headers by selectively using one of a plurality of header suppression techniques; and
>
> a cable modem termination system (CMTS) enabled to expand said data packet headers by using a set of expansion rules corresponding to said selected one of said plurality of header suppression techniques, wherein said one or more cable modems assigns a unique index number to each one of said plurality of header suppression techniques.

Chapman does not teach or suggest each of the foregoing features. For example, Chapman does not teach or suggest "one or more cable modems that suppress data packet headers by selectively using one of a plurality of header suppression techniques." In the most recent Office Action, the Examiner has conceded that Chapman does not teach a plurality of header suppression techniques. *See* Office Action at ¶ 3. Instead, Chapman teaches the use of only a single header suppression technique: suppression of Ethernet, UDP and IP headers in a flow of RTP packets corresponding to a Voice over Internet Protocol (VoIP) phone call. *See* Chapman, col. 4, ll. 29-44.

The above-described shortcomings of Chapman are not remedied by the teachings of Mahler. Like Chapman, Mahler only teaches the use of a single header suppression technique. In Mahler, the technique involves the identification of fields that are "often or always the same" in IP/UDP/RTP packet headers. *See* Mahler, col. 5, ll. 50-60. Default values for the identified fields are stored in a profile, a copy of which is accessible to both endpoints of a point to point link. The transmitting endpoint uses the profile to remove the identified fields from the packet header, thereby compressing it, while the receiving endpoint uses the profile to reconstruct the packet header. Although Mahler provides for the negotiation of a new profile between endpoints to achieve greater compression efficiency, the underlying suppression technique (i.e., the identification and suppression of fields that are "often or always the same" in IP/UDP/RTP packet headers) remains the same. Thus, like Chapman, Mahler does not teach or suggest "one or more cable modems that suppress data packet headers by selectively using one of a plurality of header suppression techniques."

In contrast to the teachings of Chapman and Mahler, the system recited in claim 15 includes "one or more cable modems that suppress data packet headers by selectively using one of a plurality of header suppression techniques." Thus, the one or more cable modems recited in claim 15 permit the dynamic application of a mix of diverse header suppression techniques to data packet headers. Thus, by way of example and as set forth in the "Detailed Description of the Present Invention" section of the present application, an embodiment of the invention of claim 15 can dynamically mix the application of a standard DOCSIS payload header suppression technique, an RTP header suppression technique, and a dynamic delta encoding header suppression technique to data packet headers.

Since Chapman and Mahler, alone or in combination, do not teach or suggest every feature of claim 15, they cannot render that claim obvious. Accordingly, the Examiner's rejection of claim 15 is traversed and Applicants respectfully request that the rejection be withdrawn. Furthermore, since each of claims 16 and17 depend from claim 15 (and therefore include each and every feature of claim 15), Chapman and Mahler, alone or in combination, do not teach or suggest every feature of each of those claims. Therefore, Applicants also respectfully request that the Examiner's rejection of claims 16 and 17 be withdrawn in light of the remarks made above.

Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be

withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

Thomas C. Fiala
Attorney for Applicants
Registration No. 43,610

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1100 New York Avenue, N.W.
Washington, D.C. 20005-3934
(202) 371-2600